STATE OF VERMONT

PUBLIC SERVICE BOARD

DOCKET NO. 6860

Petitions of Vermont Electric Power Company Inc. (VELCO) and Green Mountain Power Corporation (GMP) for a certificate of public good, pursuant to 30 V.S.A. Section 248, authorizing VELCO to construct the so-called Northwest Reliability Project	)))))

PREFILED DIRECT TESTIMONY

Hans E. Mertens

ON BEHALF OF THE

VERMONT DEPARTMENT OF PUBLIC SERVICE

December 17, 2003

Summary: Mr. Mertens' testimony summarizes the Department's overall position, and also addresses several specific issues, including but not limited to: short-term reliability concerns until the proposed 2007 in-service date, reliability and cost issues concerning line burial, and compliance with the stipulation approved by the Board in Docket 6479.

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DIRECT TESTIMONY OF
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BACKGROUND AND QUALIFICATIONS

Q. Please state your name, business address and qualifications.

A. My name is Hans Mertens. My business address is Vermont Department of Public Service ("DPS"), 112 Sate Street, Montpelier, VT 05620. I am employed by the Department as Director of Engineering Services and Chief Engineer. My resume is attached to my prefiled testimony as Exhibit DPS-HM-1.

Q. What is your is your role at the DPS in connection with the VELCO Northwest Vermont Reliability Project ("NRP" or "Project") ?

A. I am the project leader for the Department's efforts regarding the NRP, which is the subject of this proceeding.

PURPOSE AND SUMMARY POSITION

Q. What is the purpose of your testimony in this proceeding?

A. My testimony provides a summary - drawing from other DPS testimony, of the overall DPS position on the matter. During the course of my testimony, I also address several specific issues, including but not limited to short-term reliability until the NRP's 2007 in-service date, reliability and cost issues associated with line burial, and compliance with the stipulation approved by the PSB in Docket 6479.

Q. Please provide a concise statement of the Department's overall position with respect to the NRP.

A. Except for the Granite substation, DPS believes that the Board should issue a CPG for the NRP with conditions pertaining to project modifications and aesthetic and noise mitigation.

With these conditions, DPS believes that the NRP will promote the general good of the state under 30 V.S.A. § 248(a).

The Department's analysis and position are based on the information and evaluation to date. DPS has not seen the evidence other parties may provide and, consistent with its responsibilities under Title 30, reserves the right to re-evaluate its position based on further information that may be provided in this proceeding.

Q. What is the Department's position on the Granite substation component?

A. DPS does not support approval of the Granite substation component at this time because of design concerns that are discussed below and detailed in the testimony of DPS witness Mr. George Smith. DPS recommends that VELCO address these concerns in rebuttal testimony. If VELCO is unable to address or satisfy these concerns during the course of this docket, the Board should require VELCO to address these concerns in a future filing for review and approval by the Board after an opportunity to be heard by the Department and other affected parties.

Q. On which areas did the Department's evaluation focus?

A. The Department's evaluation focuses primarily on issues relating to the following criteria of Section 248(b): (2) (need), (3) (system stability and reliability), (4) (economic benefit to the state), certain issues relevant or potentially relevant to (5) (aesthetics, noise electric and magnetic fields, property tax reduction), (6) (least-cost integrated resource plan), and (7) (compliance with DPS 20-year plan). Below, I provide summaries of the Department's position on these issues as well as specific evidence pertaining to some of them. Following that discussion, I address other issues such as compliance with the Docket 6479 Stipulation, other criteria of Section 248(b), and DPS consideration of public comments.

NEED GENERALLY (30 V.S.A. § 248(b)(2))

Q. Please summarize the Department's position on the issue of need.

A. DPS believes that there is a need to reinforce the electric transmission system. Although DPS does not agree with VELCO's assessment regarding widespread blackouts, Vermont's transmission system today does not meet first contingency planning criteria, and if no action is taken Vermont risks significant loss of load. Further, our analysis, as detailed in the testimony of Planning Division witness Dr. Jonathan Lesser, shows that the transmission option constitutes the least-cost option under the societal test.

Q. But is it not true that VELCO's testimony shows an option consisting of generation and energy efficiency that is more cost-effective on a societal basis than the NRP?

A. Yes, that is true, if you are referring to the so-called ARC 5 option. However, Dr. Lesser's analysis shows that the NRP is more cost-effective under the societal test. Further, even if the Department were persuaded of VELCO's analysis of ARC 5, DPS would still recommend the transmission option because:

- Other resources are unlikely to meet the need. Generation alternatives would be difficult to site and permit, and DSM on the scale that would be needed has not been done before and entails a significant risk that it would not deliver the peak savings and reliability needed.
- The transmission option provides important reliability benefits and a greater certainty of those benefits.
- The capital costs of ARC 5 are significantly higher than the NRP.
- As detailed in the testimony of Ronald Behrns, customer rate impacts are significantly less due to major difference in capital costs.
- the project will provide economic benefits to the state.
- under VELCO's testimony, ARC 5 is not significantly more cost-effective under the societal test.

Q. Please elaborate on the need for the NRP.

A. I will do so by discussing two independent reviews of that issue. First, the Regional Transmission Expansion Plan (RTEP) completed by ISO-NE annually is a comprehensive electrical engineering assessment comprised of numerous studies and analyses that review and

report on the status of New England's bulk electric power system. This study is the most authoritative study on New England system reliability available. The RTEP identifies power system problems or needs that in turn provide market signals to address these needs, including investment in generation, merchant transmission facilities, and demand response programs - all elements necessary to maintain power system reliability and improve wholesale electricity market efficiency. RTEP integrates market responses with needed reliability and economic transmission upgrades. As stated by the ISO-NE the goal of the RTEP is not one dimensional. Rather solutions are intended "to achieve a reliable system of generation, distributed resources, and transmission that facilitates the development of a robust market with due consideration to environmental issues". (RTEP03 Report 9/23/03). ISO-NE concluded through the RTEP process that the Vermont area faces severe reliability problems due to weak interconnections with the bulk transmission system and a lack of any new generating resources or distributed resources in the region. Significantly, they identify the load pocket in the Northwest Vermont area as particularly at risk for service interruption due to the relative scarcity of local generation and weak interconnections with the New England transmission system. ISO-NE points out, the "situation is critical today, the condition is expected to **worsen considerably with continued load growth." ISO-NE has identified the Vermont work has one of two high priority projects that need to be completed**.

The Northwest Vermont Reliability Project was first recommended in the RTEP2002 report - which means the problem was identified and elevated for scrutiny prior to 2001. Since then, there have been no market responses -such as proposed generation, that are able to mitigate the reliability concerns. Consequently, ISO-NE has recommended that all the components of the Vermont reliability projects be "completed as soon as practical" (RTEP03 Report 9/23/03). NEPOOL has endorsed this conclusion by approving $156 million of construction as eligible for PTF treatment.

The recommendations of the RTEP were vetted during TEAC (Transmission Expansion Advisory Committee) meetings, which are open to all stakeholders in New England, and in which the DPS participated.

Second, the Department retained George Smith, PE to review the issue of need and provide an independent opinion on that issue and on whether the proposed NRP is designed and costed properly from an engineering perspective. In his testimony he finds that under a set of reasonable generation assumptions and summer load levels, a trip of any of several key circuits connected to NW Vermont will cause either severe voltage problems in the area or overloads of remaining circuits supplying the area resulting in severe and widespread problems throughout Vermont. Further, he agrees with VELCO's conclusion that substantial reinforcements are required and that the NRP provides this level of reinforcement up to a 1200 MW design limit forecast.

The DPS is convinced that a system upgrade is necessary to assure dependable, high quality electric service is available to all customers in Vermont. The integrated nature of the electric grid demands that all customers - residential, commercial, rural, and industrial, in all areas of the state work together or surely a loss in one area will cascade and negatively impact all.

Q. Has DPS determined whether the NRP being proposed was designed ostensibly to allow parties to import energy across Vermont to serve others in New England?

A. Yes, and there is little merit to these concerns. The NRP is designed principally to improve reliability in and for Vermonters. While the transmission system would become more robust, there is no change contemplated that would increase the import capability at the NY or Canadian interconnections. Without major enhancements at these interconnections, additional bulk sales would be impossible. That said, the stronger transmission system being proposed would facilitate the transfer of lower cost energy from other states to the benefit of Vermont and reduce Vermont's reliance on buying local out-of-merit generation to support load pockets. The NRP should be helpful in relieving congestion. Notably, these are side benefits of the NRP and do not change the fact that the NRP is intended to meet an urgent Vermont need.

Q. Are "widespread blackouts" as likely as suggested in VELCO's testimony likely if the NRP is not constructed?

A. As detailed in Mr. Smith's testimony, DPS does not agree with VELCO's representation about widespread blackouts. However, I believe there is some urgency to upgrading the

transmission system due to the unique components VELCO relies on to operate the system. I am referring to the Highgate Converter and the PV20 transmission segment - which includes a PAR, that interconnects with NY. In the event of a failure of either of these "one-of-a-kind" electro mechanical devices or one of the PV20 cable sections, a long term outage of that facility is likely. During that outage, Vermont would be subject to higher energy costs because of congestion, and more susceptible to system disruption since one contingency has already occurred.

Q. What is the Department's view of the LaCapra alternatives analysis provided by VELCO?

A. We believe LaCapra's conclusions as to the cost-effectiveness of the NRP are reasonable. The DPS's Planning Division has reviewed the LaCapra analysis and, as outlined in Dr. Jonathan Lesser's testimony, the ARC 5 alternative to the NRP developed by LaCapra - which studies the maximum achievable demand-side management (DSM) acquisition, has a societal cost only slightly lower than the NRP (roughly 1.5%). This lower cost is offset by the uncertainties associated with achieving the required DSM savings, and difficulties of siting 120 MW of combustion turbine generating capacity.

Q. Is the ARC 5 alternative a reasonable alternative to address the reliability needs of Vermont?

A. The ARC 5 option is overly risky and not in the best interests of Vermonters. ARC 5 as described in the LaCapra Alternatives Report is an aggressive energy efficiency acquisition program combined with firm generation over a 10 year period. That combination, LaCapra concludes, could cost effectively acquire a total of 213 MW of summer peak capacity at a total societal cost of $618 million.

DSM and generation have a place, but are not likely to be effective solutions to address Vermont's immediate and urgent need to increase system capacity. The DPS's Energy Efficiency Division reviewed the DSM components of LaCapra's ARC 5 and the OEI Report, and concluded as presented in Ms. Carole Welch's testimony, that DSM is not a robust option for deferring or avoiding the NRP or any of its major components. Further, it is unlikely that the aggressive and sustained levels of DSM acquisition assumed - levels which have not been achieved elsewhere, would be successful in meeting the need because:

- effective implementation of ARC 5 requires private investors and entrepreneurs be attracted and be satisfied that a viable business case exists for them;
- there is greater risk and uncertainty regarding the timely acquisition of generation and efficiency alternatives; and
- once acquired the certainty that efficiency and conservation resources are available on demand is lower than traditional resources.

Q. Would an investment in DSM delay the need for the NRP?

A. Based on the LaCapra ARC 5 analysis, only one element of the upgrade - a portion of the Granite substation upgrade, could be deferred for a maximum of 8 years. The DSM costs would be considerably higher than the savings from the selected transmission deferral.

NEED: SHORT TERM-RELIABILITY (30 V.S.A. § 248(b)(2))

Q. With regard to the LaCapra Alternatives Report was there any reference to a near term capacity shortage that the NRP would not address?

A. Yes. I would like to highlight one concern arising from that report that goes to near term reliable service. Based on the report, a supply shortfall of about 66 MW exists today. That is, VELCO does not meet the NEPOOL Bulk Power Supply Planning and Design Criteria that was developed in cooperation with the NPCC (Northeast Power Coordinating Council) to meet NERC (North American Electric Reliability Council) requirements. Moreover, it appears that the VELCO preferred solution - the NRP, is unlikely to meet the NERC reliability "standards" until 2007 based on their forecasted work schedule, while the ARC's modeled by LaCapra that include generation appear able to achieve compliance by 2005.

Q. How does this fact impact reliability?

A. I believe it is prudent to consider how temporary or permanent generation might be deployed in concert with the NRP work to meet the NERC's (and NPCC) reliability criteria in advance of 2007. Failing that, VELCO should employ other safeguards to mitigate the disruptive effect of the shortfall.

To make the point, I will utilize a needs analysis provided by LaCapra forecasts a regular shortfall in required resources in Northwest Vermont as shown in Table 5 (as found in LaCapra testimony and copied below) and the NRP In Service Schedule (provided by LaCapra) on the next page. Focusing on 2005, both tables show a shortfall of 89 MW before the NRP is completed. After the NRP is placed in service in 2007, the shortage is corrected and becomes a surplus of 51 MW. Then, by 2012, even with the NRP in place, a growing shortage - and "technical" violation of NPCC rules, is again forecast.

Table 5: Northwest Vermont's Need for Additional Resources

	Net Forecast Load (from Table 1) (MW)	NW VT Existing Import Capability (MW)	NW VT Existing Generation Load Carrying Capability (MW)	Net Need (MW)
	(1)	(2)	(3)	(4) = (1) - (2) - (3)
2002	564	384	117	64
2005	589	384	117	89
2008	635	384	117	135
2011	672	384	117	172

Northwest Vermont Need Analysis Model -- Single Bus Method
NRP In Service Schedule
Base Case Load Forecast
(Load Net of Base DSM)

Year	Zone	TTC In	ATC In	LCC MW	Load MW	Surplus MW
2002	NW VT	384.0	384.0	116.2	564.1	**-63.9**
2003	NW VT	384.0	384.0	116.2	566.5	**-66.3**
2004	NW VT	384.0	384.0	116.2	577.9	**-77.7**
2005	NW VT	384.0	384.0	116.2	589.3	**-89.1**
2006	NW VT	394.0	394.0	116.2	610.6	**-100.4**
2007	NW VT	560.0	560.0	116.2	624.8	**51.5**
2008	NW VT	560.0	560.0	116.2	635.4	**40.9**
2009	NW VT	560.0	560.0	116.2	644.6	**31.6**
2010	NW VT	560.0	560.0	116.2	657.9	**18.3**
2011	NW VT	560.0	560.0	116.2	672.2	**4.0**
2012	NW VT	560.0	560.0	116.2	683.5	**-7.3**
2013	NW VT	560.0	560.0	116.2	698.6	**-22.4**
2014	NW VT	560.0	560.0	116.2	717.6	**-41.3**

Q. Is this shortage a serious problem?

A. Historically, NEPOOL has applied the Reliability Criteria to the ISO NE region rather than just a "load pocket". This means that if Maine had a surplus of installed capacity (ICAP) and Vermont a shortage they would cancel each other and NEPOOL could report compliance with the criteria to NERC. There are however, new market rules under development that propose to require locational installed capacity (LCAP). This requirement is expected to require balancing of demand and supply on a zonal basis. Therefore, only ICAP in the VT Zone could be credited to satisfying the supply requirement.

These rules are in the formative stages and it is unclear whether action needs to be taken to correct the shortages reflected in the tables to satisfy NEPOOL's Reliability Criteria. Still, from a practical viewpoint, the shortage is real. VELCO's study suggests a 16% supply shortfall for NW VT (100 / 610 MW). Given the wrong circumstances - such as a fire at Highgate while the PV20 PAR was unavailable, the lack of available supply in 2006 to cover the 100 MW shortfall could result in a disruption to the system.

Q. What should be done?

A. As the control area operator VELCO has primary responsibility as defined by NEPOOL Operating Procedure #8 to assure the system conforms to NERC requirements. Therefore, it is incumbent on VELCO to take all necessary actions to assure the system is protected. Given the supply shortfall described previously, the PSB should require VELCO to:

a) evaluate whether temporary or permanent generation should be incorporated into the NRP plan given historical and expected market rules and consider:

1) what is the availability of generation on short notice due to emergent conditions through 2007?

2) given the regular shortages forecast, resolve how should shortfalls be effectively addressed?

3) identify various contract options and counter parties when evaluating generation proposals - including involving VGS and using generation as an economic development tool where appropriate

b) in the event the cost/benefit study argues against acquiring generation, and given VELCO's obligation to be poised to respond to component losses within 30 minutes - heighten emergency preparedness planning (including running drills) and develop detailed contingency plans to assure an organized and effective fast response results in the event of the loss of Highgate or PV20 as contemplated in VELCO's system failure scenario. As detailed in ISO NE's OP 4 procedures, consider the inclusion of local and ISO NE's Load Response Program in emergency preparedness.

Q. Would the inclusion of generation change your recommendation with regard to the appropriateness of the NRP?

A. No. The Planning Division performed an analysis that assumed the installation of one 50 MW CT to meet reliability criteria as peak loads increased. The results confirmed that the NRP investment still reflected the lowest societal cost solution.

PROJECT DESIGN (30 V.S.A. § 249(b)(2) (need), (3) (impact on stability and reliability))

Q. Please summarize the Department's position on VELCO's design of the project.

A. Overall, the project is engineered well to meet the need and does not appear "over-engineered." VELCO's choice of transmission line routes is appropriate from an engineering perspective. The NRP as a whole will promote system stability and reliability and will not adversely affect system performance. However, as explained later, due to design concerns at the proposed Granite substation, DPS is not prepared to state at this time that this upgrade will not adversely affect system reliability.

Q. Please elaborate on the Department's review of the project's design.

A. Various alternative configurations have been explored. Mr. Smith provides support in his testimony for the DPS conclusion that the proposed NRP is superior to other configurations as it represents the least cost solution from a transmission engineering perspective and provides a strong platform for future transmission upgrades if they are required. DPS believes VELCO

has done a good job of preparing a cost effective design. Mr. Smith's testimony addresses this matter in detail and notes some areas in which VELCO's cost estimates seem low.

Q. Please elaborate on the issues concerning the Granite substation proposal.

A. The DPS believes VELCO needs to do additional design work at the Granite substation. We believe, for example, that the proposed station footprint is inadequate to contain all the equipment in the proposed expanded facility. Further, Mr, Smith's evaluation of the 115 kV bus connections at this location suggest VELCO's design is below usual and customary standards. This matter is addressed in more detail in his testimony. We recommend that VELCO address this matter in its rebuttal testimony. If VELCO is unable to address or satisfy these concerns during the course of this docket, the Board should require VELCO to address these concerns in a future filing for review and approval by the Board after an opportunity to be heard by the Department and other affected parties.

Q. Would design modifications related to the Granite Substation change your recommendation with regard to the appropriateness of the NRP?

A. No, because we are confident an appropriate design can be achieved. The magnitude of the design change the DPS contemplates is not major. However, at this time DPS does not support this portion of the VELCO design.

Q. Can and should some elements of the NRP be deferred?

A. The Planning Division witness - Lesser and DPS consultant - Smith have both advised in their testimony that if the demand forecast is lower than projected that some elements of the NRP could be deferred. These elements have the effect of reducing system capacity from 1200 MW to 1145 MW design rating. However, given the practical considerations that:

- the DPS load forecast was prepared in Summer 2002, and the economy has since improved, so it is equally likely the load will grow as expected;
- the lead time to design and order the substation equipment may be lengthy and PTF treatment for this project may sunset in 2007;
- the load is forecast to reach 1140 MW in 2007 (1200 MW in 2011), and a lower load growth might only extend system capability a few years before another upgrade is warranted.

It is the Department's view that all elements of the NRP should be constructed (including the Granite substation work after appropriate design review), unless major, new developments are experienced.

ECONOMIC BENEFIT TO THE STATE (30 V.S.A. § 248(b)(4))

Q. Please summarize the Department's position on economic benefit to the state.

A. Building the NRP and improving Vermont's system peak capacity will result in an economic benefit to the state and its residents by providing certainty to the question of electric delivery at the lowest expected present value societal cost.

Q. As part of reviewing the issue of economic benefit to the state, did the Department study the rate impact of the LaCapra options?

A. Yes. DPS's Finance Division, as detailed in Mr. Ronald Behrns' testimony, has estimated the rate impacts of the NRP compared to the various LaCapra alternatives and concluded that the NRP results in the lowest rates by a substantial amount. For an average use residential customer, DPS estimates that the NRP would add $0.06 (2005) to the monthly bill (after PTF benefits are applied), while ARC 5 is expected to add $1.11 - the highest from among the options explored. Moreover, the difference between the NRP and ARC 5 is expected to grow steadily. In 2011, the increases are calculated to be $0.19 and $3.90 per month respectively.

AESTHETICS (30 V.S.A. § 248 (b)(5))

Q. Do you believe that VELCO's proposed aesthetic mitigation plan is adequate?

A. No. The DPS recommends mitigation measures beyond those proposed by VELCO in several areas.

Q. Please summarize the Department's position on the issue of whether the NRP will have an undue adverse effect on aesthetics and scenic beauty.

A. Based on the analysis conducted by DPS consultant David Raphael and his firm Land*Works[1], the project will have adverse aesthetic impacts in some areas. DPS concludes that VELCO has not proposed adequate mitigation in selected areas to prevent those impacts from being undue. The Department believes additional mitigation measures are reasonable in those areas and when deployed can achieve compliance with the aesthetics criterion. With the DPS mitigation proposed, and in light of the societal benefits of the NRP, the Board should conclude that the NRP will not have an undue adverse effect on aesthetics.

[1]Mr. Raphael's work does not address noise impacts of the NRP, which are discussed below in a separate section of my testimony.

Q. During public hearings, many members of the public commented on the issue of burying the transmission lines. Is undergrounding a transmission line a good solution to various aesthetic concerns?

A. Rarely, if ever. DPS does not support burial of any portion of the proposed transmission lines at this time, for several reasons. First, a major disadvantage to underground construction is service restoration. It typically can take 2 to 3 weeks - sometimes longer, to identify damage due to faults, mobilize repair crews, perform splices and restore line segments with buried components. In addition, compared to overhead, more frequent outages are possible since the opportunity for reclosing breakers is limited in underground configurations due to the likelihood of thermally damaging the protective sheathing on underground cables. Even simple problems can result in extended outages since fault location must be clearly identified, and isolation of the defective segment achieved before power can be restored to the unfaulted segments. While some of these disadvantages can be mitigated by installing advanced relays in the circuits, such configurations are very costly and add another degree of complexity.

Second, there is a construction cost differential for equivalent load carrying capability. Underground installations can be 5 to 25 times more expensive than overhead transmission. Moreover, given PTF qualification rules and past interpretations, the differential may not be a qualified PTF charge and therefore would become a local rather than regionalized cost.

Third, while an underground pipe-type cable virtually eliminates EMF (PDC Consultants 11/24/03), direct buried cables laid side by side in a trench actually generate a stronger field - compared to overhead, when measured at the standard location of 1 meter above ground. So, it becomes a matter of selecting the right design. In addition, accidental damage on underground facilities is more likely than an aerial line.

Fourth, while an underground line removes electric transmission from the view shed, we should remember that the electric distribution, telephone and cable may still remain. Also, wherever the underground cable transitions to overhead, terminal connections are required that include special structures housed in small buildings that look like small storage sheds surrounded by a fenced enclosure, or - for larger pipe-type cables, an oil storage tank and pumping facility.

Further, the cable trench excavated is approximately 5 feet wide, and backfilled with a weak concrete aggregate topped off with a lens of 3000 psi concrete. Installation typically requires that a construction road be built; therefore, a 50 foot corridor is cleared and maintained. Notably, the excavation activities impact wetlands and environmentally sensitive areas more dramatically than an aerial solution that requires one pole or tower every 300 to 800 feet. Finally, while overhead construction has a long history, direct buried cables - which would likely be selected for the NRP application are still a specialized technology. The first installation was 1987. VELCO does not possess the equipment or skill set to work on underground and would need to depend on a few selected construction firms for service and maintenance of the line.

In summary, there needs to be very compelling reasons for undergrounding to offset the identified disadvantages. The Department's review to date has uncovered no reasons compelling enough to justify burial with respect to the NRP.

Q. Many municipalities in which the project will be located discuss their preference for undergrounding new energy lines in their plan provisions. Please comment.

A. The Department's consultant Raphael discusses the compliance of the NRP with the so-called "Quechee" test including the issue of clear written community standards intended to preserve aesthetics or scenic beauty. With regard to town and regional plan provisions that encourage undergrounding, those provisions (summarized in Section 6 of VELCO's Dunn/Rowe testimony) typically are tempered by consideration of economic and technical feasibility. As detailed previously, undergrounding transmission lines are rarely economically practical and may actually negatively impact safety and continuity of service.

Q. With the mitigation measures proposed by the Department, do you believe any adverse effect of the project on aesthetics will be undue?

A. DPS believes they will not be undue. In this regard, the Board's order in Docket No. 6793 (May 5, 2003) states that, in considering whether a project's aesthetic impact is unduly adverse, it views the question in light of a project's societal benefits. Viewed in this light, because of its societal benefits and with the mitigation measures proposed, the NRP meets the aesthetics criterion.

NOISE (30 V.S.A. § 248(b)(5) – health, safety, welfare, aesthetics)

Q. Please summarize the Department's position on the potential of increased noise levels at substations that will be expanded.

A. At a minimum, prior to substation construction, VELCO should be required to provide, for approval by the Board, analysis of the potential noise impacts and a plan for mitigating those impacts.

Q. Please elaborate.

A. Noise mitigation is important. Controlling noise is relatively easy to engineer; however, to date VELCO has not provided any data on noise impacts relative to the substation proposals that are part of the NRP or proposed any mitigation plans based on analysis of such impacts. DPS encourages VELCO to provide such data and proposals in its rebuttal testimony. Further, the DPS recommends that the PSB require:

a) VELCO to perform pre and post noise analysis at all substations and other noise generators;

b) VELCO to include and implement appropriate noise mitigation measures in its NRP design.

Supporting testimony on this matter is provided by DPS witness Smith.

PHYSICAL SAFETY OF LINES (30 V.S.A. § 248(b)(5) – health, safety, welfare)

Q. The public has asked questions about the safety of high voltage overhead lines. Is there an increased risk as a result of the NRP?

A. No. The opposite is true. Remember, transmission lines get more attention and maintenance than lower voltage distribution facilities. If I might use the interstate highway system as a proxy for transmission, and "Maple Street" in your local community as a stand-in for distribution lines - I believe it becomes very clear that transmission lines because of their importance get much more attention, and consequently perform more reliably. First, the construction and operating standards are stricter and this translates to better performance and safety. Even when storms cause transmission lines to fail, the circuit breakers and relays that are part of the transmission design are intended to quickly de-energize the line after they fall. This topic is addressed in detail in the testimony of DPS witness Smith.

ELECTROMAGNETIC FIELDS (30 V.S.A. § 248(b)(5) – health, safety, welfare)

Q. Please summarize the DPS position on the issue of electromagnetic fields ("EMF") as it pertains to the NRP?

A. Based on the Health Department's work, the DPS believes EMF issues have been satisfactorily addressed and do not warrant modifications to the project or constitute a basis for disapproving the NRP.

Q. How did the Department address the health concerns raised by the public with regard to EMF issues associated with the NRP?

A. The DPS asked the Vermont Department of Health ("VDH") to study the EMF issue in general and then apply its knowledge specifically to the NRP. VDH's witnesses Ms. Carla White and Mr. Larry Crist very effectively combed the relevant body of science and health literature, and grew VDH's understanding of the risks associated with the proximity of electric transmission systems. VDH provided a detailed analysis of the issue which responded to the concerns various petitioners and the public highlighted. Its report is included as an exhibit to the testimony of Carla White and Larry Crist. Based on their research and findings, VDH concluded that no design modifications were necessary to the NRP. We concur and view this end condition as satisfactory.

PROPERTY TAX REDUCTION (30 V.S.A. § 248(b)(5), incorporating 10 V.S.A. § 6086(a)(6) (burden on educational services) and (7) (burden on municipal governments to provide services)

Q. Please summarize the Department's position on the issue of property tax reductions that may be caused by the construction of the NRP.

A. DPS is not convinced that property tax reductions will occur or that will rise to the level of posing an unreasonable burden on local governments. DPS otherwise does not believe that the issue of property tax reductions is relevant. This issue is discussed in Dr. Lesser's testimony.

COMPLIANCE WITH INTEGRATED RESOURCE PLAN (30 V.S.A. § 248(b)(6))

Q. Please summarize the Department's position on the question of the compliance of the NRP with VELCO's approved least-cost integrated resource plan ("IRP").

A. To date the Board has not required VELCO to file IRPs and thus VELCO does not have an approved IRP. As indicated in the testimony of Dr. Lesser, under Board precedent a company without an approved IRP must show, in a Section 248 proceeding, that its proposal complies with least-cost planning principles. The DPS believes NRP complies with such principles.

COMPLIANCE WITH DPS 20-YEAR PLAN (30 V.S.A. § 248(b)(7))

Q. Please summarize the Department's position on the question of compliance with the electric energy plan issued by the Department pursuant to 30 V.S.A. § 202.

A. As indicated in Dr. Lesser's testimony, good cause exists not to require compliance with the currently effective plan because it was published in 1994 and is outdated. DPS believes that the NRP should and does comply with the draft energy plan recently issued by the Department, that is the "Draft 2004 Comprehensive Energy and Electric Plan" (December 10, 2003). DPS believes that the proposed investments are least-cost using the decision making framework outlined in Chapter 4 of that plan.

OTHER ISSUES

Q. Please summarize the Department's position regarding whether VELCO has complied with the Docket 6479 stipulation.

A. VELCO has complied with the Docket 6479 stipulation because it completed all the tasks under that stipulation, its proposal is the least-cost solution given all of the considerations listed in that stipulation, and it proposes a plan for implementing the solution.

Q. Please describe the stipulation that was referenced.

A. In Docket 6479, VELCO sought approval for a 345kV transmission project known as the Rutland Regional Reliability project. The Department requested that VELCO agree to a 16 point study that would help define the need and alternatives for a future upgrade then known as the West Rutland to Williston upgrade.

Q. Did VELCO comply with the terms of the stipulation agreement approved in Docket 6479 before making its application for the NRP?

A. Yes. While the original schedule was extended with Board approval from the planned target dates, VELCO completed all tasks before the NRP application was filed. In addition, as discussed in Dr. Lesser's testimony, the NRP is the least-cost proposal given the considerations listed in the stipulation; and it is that solution that VELCO proposes to implement.

Q. Turning to a different issue, DPS witnesses Smith and Welch note concerns or omissions in VELCO's planning for this project, and DPS witness Lesser identifies drawbacks over the use of deterministic rather than probabilistic analysis of resource solutions. Please comment.

A. The noted concerns or omissions in VELCO's planning for this project are not material to the project, and do not impact the overall conclusion the DPS has reached. The issues identified are matters of minor content oversights rather than process. They do not affect whether the project should be approved. Therefore, DPS believes it would be inappropriate to consider them further in this docket. If the Board decides they merit further consideration, such consideration should take place in a separate docket.

Q. On another matter, please state the Department's view of the NRP under the orderly development criterion (30 V.S.A. § 248(b)(1)).

A. DPS has not conducted a comprehensive analysis under this is criterion. However, the proposed lines will be located predominantly in existing transmission corridors (100% for the

West Rutland to New Haven portion, and 22.7 of 27.1 miles in the New Haven to Queen City segment) and the proposed substation work is at existing sites (New Haven, Shelburne and North Ferrisburgh will require additional land acquisition adjacent to the substation). Based on these facts, and the testimony filed by VELCO on this topic, the Department believes it unlikely that the NRP will unduly interfere with orderly development.

Q. The Department's testimony does not address many of the criteria enumerated or incorporated by 30 V.S.A. § 248(b)(5) and § 248 (b)(8). Please comment.

A. DPS generally defers evaluation of natural resource criteria, relying on the Agency of Natural Resources (ANR) participation and direction. At this time DPS understands:

- ANR has reviewed VELCO's petition, expert testimony and recommendations, and has conducted field assessments to determine the potential impacts of the proposed Project.
- There are a number of ANR permits and approvals that will need to be obtained by VELCO prior to the commencement of construction of the Project.
- ANR does not anticipate that there are aspects of the Project that, at this time, will prevent the ultimate issuance of such permits and approvals.
- With respect to 30 V.S.A. § 248(b)(5) and (8), the Project is not expected to cause an undue adverse impact to the environment.
- There are aspects of this Project, such as final line design and pole location, which cannot be finalized at this time.
- To facilitate the review of the Project's final design, DPS and the Agency anticipate that VELCO will cooperate and apply for the necessary permits and approvals in a timely manner.

Q. Please comment on the Department's consideration of public comments in this docket.

A. Major themes identified by the Department based on the public hearings and participation of interveners in this docket to date include need, consideration of alternatives, the benefits of

reliable power, physical safety of transmission lines, health concerns related EMF from the proposed project, aesthetic impacts, line burial, noise impacts, and alleged property tax reductions. As illustrated above and elsewhere in the testimony submitted by the Department today, we have considered these and other issues. We believe that, with modifications and conditions discussed above and in the rest of our testimony, and with the caveats noted in our testimony regarding the Granite substation, the proposed project will promote the general good of the state.

Q. Does this conclude your testimony?

A. Yes.